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THE

Journal of the Society of Arts,

AND OF

THE INSTITUTIONS IN UNION.

No. 157. FRIDAY, NOVEMBER 23, 1854. Vol. IV.

Journal of the Society of Arts.

FRIDAY, NOVEMBER 23, 1855.

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FIRST ORDINARY MEETING.

Wednesday, November 21, 1855.

The First Ordinary Meeting of the One Hundred and Second Session was held on Wednesday, the 21st instant, the Rev. James Booth, LL.D., F.R.S. Chairman of Council, in the chair.

The following Institution has been taken into Union since the last announcement:—

403. Wilton (near Salisbury) Institute.

The Rev. Dr. Booth, as Chairman of Council, then read the following

ADDRESS.

In accordance with the custom, sanctioned by long prescription, which requires that the Chairman of the Council of your Society, should, in the words of one of our rules, "read an address at the opening of the Session declaratory of the course the Council propose to follow in the forthcoming Session," I now venture to address to you a few observations on the present occasion, and I promise to be as brief as the variety and extent of the subjects I shall have to touch upon will permit me to be. You will bear with me while I assert the utility, and advocate the claims on public support, of Societies such as ours. We assemble here, we meet in social converse for the friendly interchange of thought, and it may be—no doubt it has often happened—that a notion suggested, or a casual hint thrown out, may, by the operation of the laws of association, connect itself with some latent train of ideas, perhaps long forgotten, but now kindled as by a spark into a blaze of light, and thus lead to a series of researches and discoveries which may only be the brightening of the horizon before the full brilliancy of some grand discovery shall burst upon the view. Again, induced by the generous encouragement and the judicious rewards which, from the earliest period of its associated life, our Society has held forth, how many have turned their attention to some special department of art or manufacture. Our prize list from year to year has given a stimulus to the inventive faculties of our members, and has been the means of turning their ideas into that particular groove of thought which at length has led to the discovery of some process, or to the invention of some machine, that has conferred, or may be destined to confer, the greatest benefits on our manufacturing industry.

In another respect, too, societies such as ours are eminently useful. Men engaged in the dull steady routine of daily employment, run no small danger that their intellects may be blunted, and finally corroded with the rust of long disuse; for such men societies, whether literary or scientific, afford a wholesome stimulus and relaxation. The instances are by no means rare in which we find those who are engaged during the day in the busy turmoil of commercial pursuits, devoting with untiring ardour and commensurate success their leisure hours to scientific investigations. Nor is it at all strange that this should be the case; for to an active mind, engaged during the greater portion of the day in occupations which exercise only a particular class of the mental faculties, it is no irksome task, but rather a relaxation—an unbending of the bow, so to speak—to employ it in pursuits which bring into play other faculties and other operations of the intellect. Let no one be discouraged by the groundless notion that the fields of man's discovery in Nature's wide domains are already reaped and garnered, or that at the most but a few gleanings now remain to reward the patience of the most diligent inquirer. It is not so; the fertility of Nature is inexhaustible; one discovery but gives the clue to a series of others. And if it be a just assumption, as I have no doubt it is, that the secrets of Nature are actually infinite, the more we discover the greater the facility that will attend the process of discovery; for the relations that bind the phenomena of Nature together, and which are the very elements of man's knowledge, increase in a far higher proportion than the phenomena themselves. It is, indeed, more in accordance with that adaptation of means to ends which, so far as we are permitted to know, pervades the whole of creation, more in unison with the stability of the order of Nature, and with the uniform evidence of all our accumulated knowledge, to hold that so long as the human intellect shall remain such as it is, pleased with research and delighted with discovery, so long, to the remotest verge of time, will new truths arise, and new relations between them and the old be found, with the same exhaustless progression as ever—*labitur et labetur.* As the cataract ever thunders down, and the tides of the ocean never stay their ceaseless roll—as the physical aspects of nature undergo perpetual and progressive change,—a sound analogy would lead us to infer that the currents of the intellect will never become stagnant, nor the springs of the mind exhausted. Let no one, then, who pursues knowledge for its own sake despair, or be doubtful of eventual success, for though it may be that, pursuing an untrodden path he shall arrive at last at some known and beaten track, yet the chances are quite as much, nay, far more, in his favour, that he shall at length reach some unexplored region of undiscovered truth.

I have spoken, more than enough perhaps, in defence of Scientific Associations in general, but I cannot pass from the subject without saying a few words on behalf of our own Society, which has sometimes been censured by those who do not accurately realise our exact scope, or the aim we propose to ourselves. We are not associated, like the Fellows of the Royal Society, for the purposes of physical discovery, or mathematical research. The names of the Geographical, Geological, Astronomical, and other kindred Societies sufficiently indicate the precise objects on which they are respectively engaged, and we should naturally be much surprised should any one of them deviate from the well-defined course laid down for it. But our Society fills a wide sphere of action; under the comprehensive title, "the Encouragement of Arts, Manufactures, and Commerce," our chartered field of operation, almost every question of social advancement comes legitimately within our province;—in short, the cardinal idea to which all the varied objects and proceedings of our Society may be referred and subordinated is *Progress.* Progress in Arts, progress in Manufactures, progress in Commerce. Looked at from this point of view, all our proceedings and measures of the last few years will be seen to follow as legitimate consequences of that one fundamental idea carried out into action. Thus, if it be objected that the Society of Arts has failed in bringing some of its projects to a successful issue, this even, if true, would detract but little from the wisdom of the attempt, for it would only tend to shew that social advancement was not to be sought in that direction. Bacon well observes, that the "abortions of time as well as the births should be registered." Hence even our very failures are useful, because they contract the field for our investigation. Of several roads which intersect at a point, they tell us those which will not lead to the place of which we are in quest, and this negative knowledge is of no little value. "Social advancement," in its broadest meaning, is our motto. To this are all our efforts directed. The labours of other Societies and the assistance of their members, we freely avail ourselves of. The abstract researches and the physical discoveries which so appropriately grace the annals of the Royal Society, we bring down to the common uses of mankind at large, and make them minister to material comfort or social improvement. We do not forget that Lord Bacon, the great promoter of reformed physical investigation, has himself observed, that "the true and legitimate end of all the sciences is to enrich man's life with new inventions and appliances." Thus the chemical property of the unseen rays of the solar spectrum to turn chloride of silver black, led step by step to the daguerreotype and the talbotype. Taking these discoveries, which at first were looked upon rather as philosophical curiosities, the Society of Arts endeavoured to turn them to practical use, and held the first public exhibition of photography in these rooms, of which the Photographic Society is the result. Again, it applies the botanical science of some of its most distinguished members to the practical inquiry, whether any or what vegetable products, such as fibrous substances, might be introduced into this country from our colonies, either as profitable substitutes for material already in use, or as entirely new elements in our manufacturing industry. The annals of our Society, even at the present day, are full of examples of the success which has attended our efforts in this direction.

Is a discovery in Chemistry announced? Without delay we endeavour to stimulate the chemists to apply it to the improvement of some manufacturing process confessedly imperfect. Does any great commercial question, or social movement, or sanitary reform fix the attention of the public? It is discussed and ventilated in this room, and I will say not seldom with considerable advantage. Thus, for example, the subject of limited liability, the repeal of the paper duty, the origin and nature of strikes, the smoke nuisance, &c., have each been here thoroughly discussed.

Our Society has always striven to give the widest diffusion to all such discoveries as held out the prospect of being generally beneficial. During a period of our social history, when protection and monopoly were held by our most eminent statesmen and most expert statists to be the very tap roots of commercial prosperity and manufacturing industry, the Society of Arts discountenanced patents and monopolies of every kind. We had even then a dim perception of that great cardinal truth in social science, which has not even yet universally received that frank and undoubting acceptance which it will one day obtain—that the free and unfettered intercourse of nations, and the wide promulgation of truths, discoveries, and inventions among them, are the surest guarantees for their individual prosperity and lasting peace. It is indeed strange that we should be so long in getting at a truth which on the very face of it would seem to be almost self-evident. For if we take into account the vast variety of the animal and vegetable creations as diffused over the globe—the wide diversities of soils, localities, and climates—the configuration of the earth's surface, affording such facilities for commerce by its rivers, seas, and harbours; if we consider the fact, denied by none, that no country, however extensive, contains within its bounds all that it requires; if, moreover, we add to these the migratory instinct implanted in the heart of man,—surely it is no forced nor far-fetched conclusion to surmise that Providence ordained man should hold free intercourse with his fellows; and if so, it will next follow, as a logical inference, that this intercourse must tend to the benefit of all, and that the greatest good of the whole consists in the greatest good of its several parts. Thus it is commercially as well as philosophically false that a nation becomes rich because its neighbours are poor, or that its prosperity is based on their calamity.

Again, by a sort of reflex operation, we make the improvements and consequent cheapness of the products of our manufacturing industry react upon the social improvement of the poorer classes of our population; of this I cannot give you a more striking instance than the remarkable success which has attended the efforts of our Vice-President, Mr. Twining, whose philanthropic labours have in so marked a manner called forth the approbation of the Emperor and the Empress of the French; and it is with much satisfaction I add—a satisfaction in which I am sure you will all most freely share—that he has been most deservedly honoured at the recent distribution of civic decorations by the Emperor of the French. Our Society, through Mr. Twining, has been associated in the minds of the French people with this movement, and has shared the credit which the idea of an Economic Museum so justly deserves.

I am sure I do no more than give utterance to our general wishes when I express an earnest hope that of the many Societies which have gone out from amongst us, from the days of the infant Royal Academy to our own, *The Special Museums for the Working-Classes* may prove neither the least successful nor the least useful. I regret much that our very confined space will not permit us to retain the collection permanently amongst us. This is but one instance out of many, of the heavy damage and great discouragements our Society has to bear from the confined and inadequate accommodation which in these premises we are compelled to put up with.

Owing also to the same cause the Council have been induced to accept the offer of the Royal Commissioners to take the Trade Museum of animal produce off their hands, and to pay the expenses incurred by the Society in its formation. The Council have stipulated with the Royal Commissioners that this very valuable collection, brought together by Professor Solly, shall be exhibited to the public on very advantageous conditions, immediately a suitable building, now in preparation, shall be ready to receive it.

I am relieved from the duty of entering into a fuller exposition of the aims and objects of our Society, and I must forego the pleasure of giving a detailed statement of the good it has accomplished during the past century, as I have been anticipated by my two immediate predecessors in this chair, Mr. Chester and Lord Ebrington, to whom our Society owes so much. They have entered at considerable length into the details of our history. That history would, I have little doubt, be found still more clearly written in the annals of the progress of the agriculture, the arts and manufactures of this country, and may I add, to some extent, of the colonies too.

To those who reside at a distance from London, or who cannot conveniently attend our evening meetings, the *Journal* of the Society supplies a weekly *resumé* of our proceedings. As it is a very heavy charge on the funds of the Society, I regret that our members do not more fully develop its capabilities. Its pages are always open to important facts, new views, or novel speculations. Were each member to communicate the facts that come under his own observation, kindred to the spirit of the *Journal*, or give information not easily to be had elsewhere, or impart knowledge bearing on those matters about which the Society is engaged, I have little doubt that the *Journal* might be made a publication of great interest, and an organ of the opinions of some 70,000 intelligent persons. This is clear, for the Institutions might use its pages to a much greater extent than they do at present, to make known their wants and to record their opinions. It is only in this way that our *Journal* can ever become of value as an exponent of public opinion. I must reiterate my regret and that of the Council that an instrument so costly and of such latent power should not be more extensively used. To those members who are engaged in researches often of the highest value,—to those inventors, some of whom unfortunately, like the late Mr. Cort, of puddling and rolling memory, enrich the nation while they beggar themselves,—to those who seek publicity for their ideas, and fair play for their development, to all such our Society affords an open field and free discussion. But for the Society of Arts, the Great Exhibition, which stamps its impress on the time, and marks an era in the social progress of nations, instead of being a realised fact would still be nothing more than a misty conception, or at best a fair vision in the mind's eye of some dreamy projector.

You are no doubt prepared to learn,—in fact most of you must be aware,—that the Council of last session laboured strenuously to redeem the pledges it gave through its chairman. If it has not been completely successful, some allowance must be made for the difficulty of the time, and the little interest public men take or indeed can take just now in the advancement of science, or in the growth of social improvement, or in the spread of education. Indeed, Lord Bacon long ago complained, and the complaint has not since been redressed, that States were too busy with their laws and too negligent in point of education.

The Council have gone to the expense and trouble of having a Bill carefully drawn, which, if accepted by the Government and passed into a law, will settle the question of the rating of Literary and Mechanics' Institutions on a satisfactory and simple basis. I cannot, however, conceal from you my own impression that the Government will scarcely, at the present juncture of public affairs, accept a bill which would necessarily open up a very wide and complicated financial question, and one, too, on which the best friends of the Institutions are by no means agreed. It will be the duty of the Council, however, to urge the matter on the attention of their Parliamentary Committee and the Government, and to use their best endeavours to bring the matter to a successful issue.

It hardly needs that I should bring under review the Society's recent visit to Paris, a step which was taken on the express recommendation of our illustrious President, His Royal Highness Prince Albert. The visit was a source of enjoyment to a very great number of the members and their friends, and although disappointment may have been felt in some cases, yet I have no doubt whatever that the visit was productive of great good, as drawing closer the bonds of union between two such nations as France and England. To the thoughtful members of the Society it must have been an agreeable reflection that the idea so vaguely and dimly elaborated at the Adelphi seven years ago, shone forth with such brilliancy in the gorgeous arcades of the *Exposition Universelle.* The Emperor, as you all know, was pleased to receive an address from the Society, and in reply he alluded in very flattering terms to the part taken by us in the inauguration of such universal displays of the world's art and industry. On that occasion one of our most respected members was permitted to bring under the notice of the Emperor the great importance of town drainage. In brief, but expressive terms, Mr. Chadwick pointed out the numerous advantages, both sanitary and commercial, which a system of thorough drainage would confer upon Paris and the other large and populous cities of France. Such has been the profound impression produced on the Emperor's mind by Mr. Chadwick's arguments and statistics, that he has been requested, I am informed, to reduce his views to practice, and one of the worst drained localities in Paris has been placed under his control.

It now remains that I express more definitely the views of my colleagues on the action of the Society during the forthcoming Session. Before I proceed to do so I must bring to your recollection that on the recommendation of the Council you have made some alterations and important improvements in our bye-laws; you have repealed some which had become obsolete, as they were framed on the assumption that the Exhibition of 1851 would be permanently continued. The most important change, however, will be found in the provision which requires that the special business of the Society, that is to say, the encouragement of arts, manufactures, and commerce, will be brought more directly into contact with the leading members of our Society in every department. It is the zeal, the knowledge, and the character of these men which alone shed lustre on our Society. Its Council is an executive committee, chosen out of the great body of the members for no special aptitude in these matters, but for their business habits, a fair share of common sense, but above all on the ground that they will not, either individually or collectively, lend themselves to countenance any thing which may savour of injustice or partiality. The names of the members of the Society selected to aid the Council by their judgment, and advice, will be published for the future in the same manner as the names of the President, the Vice-Presidents, and the other members of Council. It is upon them that our reputation as a Society of Arts will henceforth chiefly rest. The Council, in matters of this kind, will be mainly guided by their judgment and advice.

The subject of lecturers for the Institutions in Union with us is now occupying the undivided attention of a committee specially nominated to devote their continuous attention to it, and I will only here say that the Institutions may rest satisfied that the Council will leave nothing undone to place the whole question of lectures and lecturers, if possible, in a more satisfactory position. But the subject is beset with difficulties of no ordinary kind, which for months together have perplexed and baffled successive Councils of your Society. Thus, some Institutions hold lectures but in small esteem; others will not have them at at all. Again, even of those who are importunate for a supply of lecturers, we have found in the actual working experience of the Secretary's office, that the Institutions of the same county, or even of the same neighbourhood, will neither reciprocate their advantages nor combine for united action. It thus becomes impossible to lay down beforehand an organised system of sending forth from the Society a selected staff of approved lecturers—men for whom the Society would not hesitate to be responsible—who, at a moderate charge to each, should proceed from Institution to Institution to deliver lectures day by day during their progress. This would be a practicable system, but the Institutions show but little disposition to support it. We have also published a very full list of lecturers and their subjects. It may have been found useful, but I much doubt whether its utility compensates its cost. The real information it contains is very accessible to those who desire to obtain it, even though they should not avail themselves of our catalogue. But let us pause, and ask are lectures of the great value which some would seem to endow them with. My own opinion, and to my sentiments my colleagues are in nowise committed, my own belief is, that they are, even the best of them, very much overrated. Whatever value may attach to lectures on moral or religious subjects, on those which set the imagination to work, or kindle the emotions, I am convinced, from long thinking over the subject, that scientific lectures, as they are called, or talk about physical phenomena, or abstract researches in pure science, are of very little educational value. They are useful because they amuse; they are pernicious because they beguile those who habitually listen to them into a loose sort of notion that they know something of science.

This may seem a very sweeping and a very needlessly wide generalisation on my part, but it is high time to put an end to this delusion in education. Men cannot scale the arduous and rugged paths of science by sitting still, and using only their ears. It was long ago said "There is no royal road to learning;" it is just as true that we cannot get there by railroad; every man must travel that journey for himself, on foot, happy if even foot-sore and weary he shall at length reach that "city placed upon a hill," "whose light cannot be hid." The grounds on which I have been led to hold this very unfashionable opinion are very convincing to myself. When we want to move the affections, to raise the passions, to influence the will, or to urge forward the action—in short, when we are required to operate on the emotions, then an oral discourse, whether it be called a speech or address, a lecture or a sermon, is unquestionably the true instrument to use. Now the signal efficacy of this mode of access to the mind being unquestionably, in its legitimate sphere, the excitation of the emotions, it was a very natural though unsound generalisation that the same method, oral teaching or lecturing, would develope the powers of the pure intellect. For, as I have elsewhere said, when we are required to bring into active exercise the reasoning powers of the understanding—whose characteristic mode of action was aptly designated by Newton, as patient thinking—which operate slowly, which must pause from time to time, look back, so to speak, and review—nay, sometimes travel over again and again—the steps of recent progress, where a series of unsuccessful tentatives are often of more real use to the mind than the admission into it of a suggested discovery, where the healthful exercise of the toilsome ascent, and not the prospect it commands is sought for, silent patient study is the only road by which we can in reality advance, and self-instruction is our best equipment for that road. The success of these, as means to an end, can be tested by examination alone. Action is equal to reaction in the material world around us; it would be against all analogy to expect that in the world of thought great intellectual force could be developed without an equivalent mental labour.

With respect to the matter of Decimal Coinage, or rather Decimal Accounts, the Council do not believe it expedient to appoint a committee to consider it. A committee whose members were all of one way of thinking, would probably not give satisfaction, and if constituted of divers opinions, it would very likely come to no result. It is an open field for obstinacy and ignorance to occupy, and they have not been slow to profit by the opportunity. The Council will however watch the progress of the question, and, should the necessity for it arise, will not fail to exercise any influence they may have, to secure a satisfactory solution of the question.

I come now to the most important question to which the Council of our Society can devote its attention during the forthcoming session, I mean that of education as promoted by systems of examination. The importance of examination as an efficient instrument for the promotion of education is every day receiving ampler recognition. Several years ago I gave much patient thinking to the problem, how the State could best promote the education of the people, especially of the middle classes, without provoking sectarian jealousy, or exciting political opposition. I worked it out in all its details, and I came at last to the settled conviction that examination is the only instrument the State can safely or efficiently use to promote the education of those classes who are able to defray the cost of the instruction they require. I published at the time the results in the form of a pamphlet, under the title, *Examination the Province of the State.* While many acknowledged the soundness of the views I had developed, several considered them too far in advance of the time, while some pronounced them altogether Utopian and visionary. Since that time our late chairman, Lord Ebrington, by an independent process of thought, arrived at nearly the same conclusion. In his letter to Mr. Chester, published in our Journal in July, 1854; in his speeches at the Conference which immediately followed; at several agricultural meetings, and still more recently in a memorandum which has appeared in the Journal of two week's back, his lordship has developed his views on the establishment of examinations for the sons of farmers, with much clearness and force. I need not recapitulate them, they are doubtless familiar to most of us. Again, in the *Report on Industrial Instruction,* presented to this Society in April, 1853, and published under the authority of the Council, the question of examination, considered as an instrument of the development of industrial instruction, was very fully discussed. While thus several independent thinkers were arriving successively at identical results, their views were very unexpectedly but most forcibly confirmed. The requirements of the Civil service became so imperatively pressing, while the long established mode of supplying vacancies therein, by the exercise of irresponsible patronage, was found to be so detrimental, that men of the highest standing in the public departments, such as Sir Charles Trevelyan and Sir Stafford Northcote, strenuously advocated an entire reformation of the present system, on the principle of making competitive examination the chief test of fitness for public employment.

It is somewhat remarkable that such very dissimilar inquiries as, how may vacancies in the Civil service be most efficiently supplied, and how may the State best promote the advancement of National Education, should have led two sets of independent thinkers to one and the same conclusion, that to make competitive examination the test of fitness for public employment, is not only the best way of supplying the wants of the public service, but the most effectual method that can be devised for the promotion and development of the education of the people. It is satisfactory to observe the rapid progress the question has made within the last few years. Not only is the system of testing proficiency by means of examination in operation at all our Universities, where long experience has tested its advantages, and on the largest scale, but within the last two years the patronage of the Directors of the East India Company has been appropriated by the legislature to reward successful industry and talent as tested by means of competitive examinations. In the same way very recently the War Department has thrown open to public competition appointments in the Engineers and Artillery. The Admiralty have just now followed this example in the establishment of a more efficient system of examination for cadets previous to their admission into the Navy. Earl Granville, as Lord President of the Council, and head of the Educational Department of the State, has inaugurated the same system, by admitting candidates to compete for clerkships in the Privy Council Office, on the conditions laid down in Mr. Chester's letter to the managers of the Wandsworth Trade School. Examination is once more revived in the Inns of Court. There is thus a general awakening of the public mind to the importance of having "the right men in the right places." The present system is too costly,—the nation cannot afford it. Inefficient services are dear at any cost. This might be a fitting place to discuss the causes which in so short a time have brought round an entire change in the opinions of the public. But as this aspect of the question has lately assumed somewhat of a political hue, and the Administrative Reform Association have taken it up on this ground, and press it on the attention of the country, I will not further discuss that bearing of the question here. It has received sufficient ventilation elsewhere. Yet, were not men swayed by long established forms and by words rather than things, it would be hard to explain why it should not be as much the birthright of an Englishman to demand the opportunity of serving his country, if found qualified, as to avail himself of his undoubted right to enter the professions of medicine or the law. Can any good cause be shown why it should not be as competent for him to compete for public employment as for a fellowship at Oxford or Cambridge? It is a sound provision of some old statute of the Plantagenets or Tudors, "None shall obtain offices by suit or for reward but upon desert."

I am entirely convinced that were such a system of general examinations in actual operation all over the country, an amount of intellectual power would at once become available for the common good, of which we can form but an incomplete notion at present. An eminent statesman of our own time, advanced in years, but more advanced in honour, has said there is no great bank of talent to be found on which the nation can draw to avert an intellectual bankruptcy.

This no doubt is true; and it is equally true there is no great hoard of gold now available in Australia; but would any one therefore deny that many a massive nugget and ponderous ingot of the precious metal lies buried, far out of sight, in the mire of some dark gully, or in the sands of some preadamite watercourse. They are there, we know, but until found and brought to light what do they avail us? So, though genius, energy, and talent, lie buried in the masses around us, what are we profited. And if one may be permitted to argue from the analogy of God's providence, as manifested in the works of nature, which of the innumerable seeds, both in the animal and vegetable creations, permits but comparatively few to come to perfection, we are led by the hand, as it were, to the conclusion, that of the vast amount of uncultivated intellect and rude genius which at any given age of the world, existed in the great mass of mankind, but a very minute and insignificant portion has been ripened to perfection for the use and advancement of man. We should no more tolerate the waste of intellectual power than of material wealth. I believe no better method could be devised to secure so important an object than the one we are now discussing—an universal system of examinations. The Society of Arts is prepared to aid in this good work with their utmost energy wherever an opportunity offers.

Nearly three years ago the question was formally brought under the notice of the Council in the report on Industrial Instruction. At the opening of the one hundredth session of our Society, Mr. Chester strongly recommended from this chair a general system of examinations to be established for the classes attached to our associated Institutions. The subject is growing in importance every hour. It was only a few weeks since that the Mechanics' Institution at Huddersfield held class examinations, apparently stringent, and showing a fair average amount of knowledge in the candidates. Our illustrious President, to mark his sense of the importanee of such an example in this direction, presented the Huddersfield Institution with £25 to be distributed in prizes.

To encourage examinations of this kind, the Council propose to appropriate a considerable sum to be awarded in prizes to those Institutions associated with us, who shall hold, under certain limitations and conditions, the best sets of examinations within a certain period. The scheme when matured will be made public through the pages of the *Journal.*

There is yet another agency by which we desire to promote the interests of our Institutions. I refer to the establishment of *circulating libraries*, itinerating among groups of Institutions, or the associated societies of a county. The system of itinerating libraries has been for some years successfully in operation in the Yorkshire Union, in the Northern Union, in the Lancashire and Cheshire Union, and it has also achieved a great success in the Hants and Wilts Adult Educational Society, under the energetic and judicious guidance of the Hon. and Rev. Samuel Best and Mr. Wyndham Portal. To each of these groups of Institutions our Royal President has presented a box of books for circulation. Should any group of our associated Institutions desire the Society's aid in this matter, the Council will be prepared not only to afford every information which may facilitate the establishment of libraries of this kind, but also will be disposed to lend some material aid besides.

And now it is time that I should bring this somewhat tedious address to a close. Having said so much about ourselves, I will now say a little with reference to you. If we are to achieve any thing that shall hereafter be worthy, I will not say of recording, but even of remembering, it can only be effected by the close and cordial union of the Society of Arts with its four hundred associated Institutions. Unhappily we live in times when the still small voice of peace and her attendant train is lost in the din of arms. Our day is a witness of one of the great turning points of this world's history. Let us take care, even now more zealously than ever, that we shall not neglect to cultivate those arts which have made this country, an insignificant island on the outer verge of Europe, one of the great controllers of the destinies of the human race. There is yet another reason why we should cherish and uphold our Union. It has been said union is strength; so, too, union is power; association is one of the chiefest elements of success. Now of late years the ruling power in this country has gradually been transformed from a Government into an Administration. I express no opinion, I only state a fact. What I mean is, that no ministry in these times ever thinks of inaugurating a policy of its own, and standing or falling with it. The Administration conceives its duty to consist in carrying out, in legal phrase and constitutional form, those measures which the country demands. Consequently other measures, however pressing, essential, or beneficial, fall into abeyance, because, in commercial phrase, there is no demand for them. They must be pressed, nay, forced on the attention of the Government, or they will receive no attention. Look back at the legislation of the last five and twenty years, and ask how many of the great measures of reform which signalise that period would have been passed but for the pressure from without. I apprehend very few indeed. To agitate has become a privilege as constitutional as to petition. It is no longer branded as sedition. I do not believe that this is an unhealthy state of things;

those slight vibrations in the framework of society only establish its equilibrium; the fluctuations of the ocean do not affect its stabilty—they are the conditions of life for all within its bosom. Nor are those persons or parties who bring this external pressure to bear on an administration, or who use the screw, as the phrase is, therefore, looked upon as its opponents, for it feels that it can do nothing unless this pressure is brought to act upon it through Parliament or the public. Considered from this point of view, the close and intimate union of the Society of Arts with its four hundred Institutions becomes a matter of very grave importance. Their concerted action would be a powerful lever to move matters legitimately within their sphere. For example, the nomination of Mr. Tufnell's Committee for the distribution of parliamentary papers was entirely owing to the simultaneous action of the Mechanics' Institutions organised by the Society of Arts. I may remark, by the way, that the practical conclusions to which this Committee came lapsed, through Mr. Tufnell's much lamented death. We propose to try to induce the present Government to carry them out.

Time, that great innovator, has swept away many of those objects on which our Society set a high value during the first century of its existence. A second century is now open before us,—why should we not follow the example of time, and innovate by devoting our energies to those practical questions which press for a solution. We begin the century with many advantages over our founders. Political strife, if it has not altogether ceased, has been much allayed. The intercommunication of nations has been marvellously facilitated; erroneous principles of policy and vicious systems of trade have passed away. Moreover we have the benefit of their experience; their shipwrecks reveal to us the rocks and shoals we must avoid. If wisdom be the attribute of age, we should be wiser than they, for we have reached an older age of the world, and as we increase in knowledge we should also grow in wisdom. To those who project their thoughts into the uncertain future, it must be a matter of anxious solicitude, even though they be not dismayed by the reflection, that the onward progress of mankind has been once and again in the history of human advancement thrown back upon itself; to all such it must be a question of deep anxiety whether we shall afford another instance to verify the maxim of Polybius, that all empires, having attained to eminence hasten to decay, or whether a higher destiny may not rather be reserved for us, to spread the blessings of civilization—the fruits of an ennobled humanity—to give light to them that sit in darkness—to loose the chains of the captive—and to secure the liberties of mankind.

The Medals awarded at the close of the last Session for papers which had been read at the Evening Meetings, and for articles exhibited at the Society's Annual Exhibition of Inventions, or which had been submittted to the Society's Committees, were then distributed to Messrs. Atherton, Col. A. Cotton, Lawes, Dr. Royle, Sanderson and Simmonds in the former class, and to Messrs. Abate, Field and Son, How, Mackworth, W. Muir and Co. and Wenham in the latter category. A full list of these awards was given in Vol. III., page 589.

The Secretary announced that at the meeting of Wednesday, the 28th inst., the following Paper would be read :—"On the Gums and Resins of Commerce," by Mr. P. L. Simmonds. On this evening Dr. Lindley will preside.

Home Correspondence.

MR. LOSEBY'S PARALLEL RULE.

Sir,—As far back as the year 1821, Mr. Elliot, now Elliot and Sons, mathematical instrument manufacturers, made several equi-distant parallel rules for me, both with the simple link as well as with the micrometer screw and stops. I found, however, that the parallel joints of the ordinary rule are seldom correct, and when made so do not long remain true. I therefore adapted the micrometer screw and stops to the sliding wedge parallel rule, which completely answered my expectations. I afterwards found that in order to produce fine ruling and uniform tints, it was necessary to put the pen in a carriage running upon parallel bars, when the ruling became, of course, as perfect as that of the engraver's.

Mr. Webster's observations regarding the inaccuracy of Mr. Loseby's machine on account of the varying angle of the micrometer screw, are hypercritical, because it would never be used for very delicate and accurate divisions; and the imperceptible slip which always accompanies the trip-step movement, even in the sliding wedge form, wherein there is no angular defect, will ever render it unequal to any really exact work.

The cause which has prevented its general introduction is the facility with which mechanical draughtsmen in full practice will rule equi-distant lines by eye. and produce uniform tints quite true enough for all practical purposes, and will not harass themselves with a machine which requires so much manual dexterity.

My attempt, though original with me, was by no means the first, for I afterwards found that mechanical draughtsmen had long before been in the habit of fixing a link to their parallel rule for equi-distant parallel ruling, the first step towards producing the trip-step equi-distant ruling engine.

I enclose a sketch of my wedge-form equi-distant ruler, as it is very simple and inexpensive, but it should be observed that a necessary step towards perfection is to put the pen in a carriage running upon two bars parallel to the edge of the ruler.

There is a plate and description of a very complicated ruling engine, on the trip-step principle, for the use of engravers, in the former Transactions of the Society.

HENRY W. REVELEY.

Poole, Dorset, Oct. 19, 1855.

DECIMAL COINAGE.—THE TENPENNY SYSTEM.*

SIR,—May I beg a little space to remark that the question at issue between Mr. Rathbone and myself being one of *coinage* exclusively, that gentleman ought to have restricted himself in the discussion to making the most of his "tenpenny plan" *independently* considered, without appropriating to it, in addition, all the advantages belonging to *a system of weights and prices made to match*, by reckoning in its favour the apparent "saving of figures and labour effected by calculating at so much *per* 10*lbs.* instead of *per ton*."

I observed in my letter of the 27th ult. (*Journal* Nov. 2nd), that "it would be a fairer comparison for Mr. Rathbone to make his calculation at 302 tenpences and 4 pence per ton, than at 13·5 pence per 10lbs." But of this he takes no notice, and likewise evades the question, *how to calculate without duodecimal division* the number of shillings and pence wanted to pay such sums as 17 tenpences and 6 pence, and 9 tenpences and 7 pence, while he merely informs us that the first *may* be paid with 10s., 4s., and 8d.; and the second with 5s., 2s. 6d., 6d., and 1d.

I have not seen his pamphlet of 1853, but my assertion as to the centesimal ratio is *confirmed* by his paper read before the British Association in last September. He there states:—"Three (moneys of account) were *vainly attempted* both in France and America; but the decimes of the former, and the dimes of the latter, have entirely disappeared, both as moneys of account and circulation."

Of course, I do not dispute the fact that calculations in a decimal system of coinage combined with a decimal system of weights and measures, would be simpler than they are at present. The greater part of Mr. Rathbone's letter might, therefore, have been omitted.

I remain, Sir, your obedient servant,
SAMUEL A. GOOD.

H.M. Dockyard, Pembroke Dock, Nov. 17, 1855.

RECOIL OF MORTARS.

SIR,—An ingenious mode of enabling mortars to recoil has lately been introduced, but what advantage is expected to result from this invention? Mortars have hitherto been fitted without recoil, and no mischief resulted from this mode either to large or small vessels. Sir Howard Douglas informs us that mortars were laid aside in favour of howitzers, but not, it would appear, on account of any bad effect of the mortars on large vessels; and in regard to small ones, no less than 14 ships' long-boats were armed with the largest mortars in use, fixed, without any carriage, so as to be fired point blank, or at small elevations, and did much execution to ships of the line in the year 1788.

I am, Sir, truly yours,
M. S. BENTHAM.

16th Nov., 1855.

Proceedings of Institutions.

BOLTON.—The thirtieth annual report of the Mechanics' Institution congratulates the members upon the acquisition of superior premises, which were inaugurated under the presidency of Lord Stanley, M.P. The committee express the hope that before any very long period has elapsed, they may be enabled to renew the suspended effort to obtain a new building. The number of honorary members is 61, and of general members, on the average of the four quarters, 193. Compared with the previous year, there has been a decrease of 3 honorary members and 29 general members. The number admitted by transferable cards has been the same, namely, 44. The balance-sheet shows the receipts from all sources to have been £310 19s. 1d., and the expenditure £332 15s. 9d., including a balance of £6 3s. due to the Treasurer on the previous account. The present deficit is thus seen to be £21 16s. 8d., and this, notwithstanding the receipt of £10, which the Committee of the Factory Workers' Bazaar generously placed at the disposal of the committee. A sum of upwards of £50 is also still required to meet the liabilities incurred in removing and fitting up the new premises. The reading and news-room has proved the most attractive portion of the Institution during the year. The number of volumes added to the library has been 128, being by purchase 102, and by donation 26. In addition, a considerable number of Parliamentary Reports has been presented by Mr. J. Crook, M.P. The number of volumes now in the library is 4,286. The total number of issues was 12.216 volumes, showing a decrease of 2,100 volumes, due to the suppression of issues during the time occupied in removing. Four boxes of books belonging to the Itinerating Library of the Institutional Association were also circulated for a short period. The classes have declined in efficiency. In addition to the two sections of the Elementary Class, numbering on an average 60 members—the Mechanical Drawing Class, averaging 19 members—and the Essay and Discussion Class, with an average attendance of 25 members—a Reading and Elocution class has been formed. The French class had to be discontinued owing to the inattention of the teacher, but efforts are being made to revive it. A Mutual Improvement Class has been in operation during the greater part of the year. The total number of members attending the classes has been 126. There have been three gratuitous lectures, two popular entertainments by Mr. H. Russell, and a concert by the English Glee and Madrigal Union.

NEWCASTLE-UPON-TYNE.—The seventh annual meeting of the Northern Union of Literary and Mechanics' Institutions was held in the library of the Mechanics' Institute, on the 31st ult. Earl Grey presided. The report commences by observing that the establishment of Mechanics' Institutes would have been incomplete without that reciprocity of intelligence which it is the principal object of this Union to disseminate. "The little village club, however zealously it is conducted by its humble officers, who laudably contribute their talents, their time, and their energies to its success, cannot achieve that success which is insured to it by a union with similar institutions. By such a union it becomes part of a great whole, important to society, to the nation, and to human nature itself. Not only is its power for good strengthened within its own sphere, but that power, otherwise limited, is extended in an incalculable degree; and the voice which speaks from an alliance of such Institutions will be heard with a degree of respect which no isolated body, however important in itself, can command." The idea which prevails in some quarters that Mechanics' Institutes have generally been failures, is thought to be incorrect, as "the improvement in the literature addressed to the working classes is a proof of the advancement of their taste and knowledge. A higher degree of talent is now necessary to insure popularity, and the best writers of the day are understood and appreciated by mechanics and labourers." Twenty five Institutions have been supplied from the Itinerating Library with a succession of twenty volumes every two months. By this plan societies with limited means are enabled to present their members, at a mere nominal cost, with a succession of new books, which could not otherwise have been obtained. H.R.H. Prince Albert has presented to the Itinerating Library 234 volumes of useful literature, handsomely bound in calf. Lord Brougham has also recently made a donation of valuable books to the same library; whilst Mr. Thomas Hedley has given seven boxes for transmission of the books from place to place. "From statistical returns made by twenty-four societies belonging to the Union, the total number of members last year was 2,443; the number this year amounts to 2,411, of which 63 are female members. It is much to be regretted that so few females avail themselves of the advantages afforded by such societies. Of newspapers taken in, 32 are daily, and 2 twice a week, and 164 weekly. The number of volumes in 23 societies was 32,061; the additions made this year are 1,079; making the total number of volumes in 23 societies 34,140. The circulation during the past year amounts to 44,060 volumes, forming somewhat more than an average of 18 volumes for each member. In connection with the Allenhead's Library and News-room, there had been formed a children's library, which is free to those children whose parents are members of the Institute, numbering at present 120 volumes adapted to juvenile tastes and capacity. This is a new and pleasing feature of a village library, and well deserves to be extensively imitated. The income of the above societies was £1,084 15s. 4¾d.; the expenditure £1,068 17s. 3¼d. It appears that the only institutions out of 24 that possess buildings exclusively their own, are Gateshead, and South Shields, in the county of Durham, and Haydon Bridge, in the county of Northumberland, and that a great many of the smaller societies have rooms granted for their accommodation free of charge. The free-holders of Framlington, in the county of Northumberland, have kindly offered for the use of the Institution of that place a free site, and it is to be hoped that the means for completing a new building will be speedily forthcoming. According to the returns, there are only 10 classes connected with the above-mentioned 24 Institutions; the Elswick Engine-Works Institution, however, have lately, in addition to their usual class, formed a class for mechanical and ornamental drawing, and with every prospect of success; the drawing classes connected with the South Shields Institution have for several years been in a flourishing state, the average attendance being 50 pupils, who pay a small fee each to the master, the remainder of the salary being defrayed out of the general funds of the Institution." * * * "From the reports made, it appears that 31 lectures have been delivered, 30 of these being gratuitous, and only one paid lecture. It would, therefore, appear quite evident, that the societies have not the means of engaging lecturers, and consequently it behoves the Union to afford every facility and advantage for gentlemen of ability, to devote their leisure to the instruction of the people in the pursuit of useful knowledge." The report then proceeds to state that, "It is a subject of deep regret to the council, that classes are not generally supported by Mechanics' Institutions. Evening schools especially, if properly conducted and supported, would be most advantageous to those whose education has been neglected. The council would earnestly urge upon the various committees the propriety of attention to this all-important question; indeed, few of the working classes can receive such an education at school as shall fully meet the requirements of after-life, and the experience of many men proves, that the most valuable because the most practical part of their knowledge has been gained after their education, as it is termed, had been concluded. It was to meet this deficiency in the means of the diffusion of knowledge, that Mechanics' Institutions were formed, and it appears absurd to neglect so obvious a means of attaining their object." The report concludes with the expression of the hope that Mr. W. Hutt, M.P., may be induced to take up and bring before Parliament, the question of the legal position of Institutes in reference to local taxation, which is at present in a most unsatisfactory and unsettled state. The report having been agreed to, it was proposed by Mr. R. INGHAM, M.P., seconded by Mr. H. G. LIDDELL, M.P., and carried unanimously, that an address be presented to H.R.H. Prince Albert, for his handsome donation. Various votes of thanks were then passed, the speakers being the MAYOR of NEWCASTLE, Mr. ROB, Mr. J. G. GRANT, Sir JOHN FIFE, the Rev. CLEMENT MOODY (Vicar of Newcastle), and the noble Chairman. Walker-upon-Tyne was selected as the place of meeting for next year, and the president of the Institute at that place, Mr. T. A. Cook, was elected president. After the delegate meeting a dinner took place, at which Earl Grey presided, supported by the Mayors of Newcastle and Gateshead, the Vicar of Newcastle, Messrs. R. Ingham, M.P., Hon. H. G. Liddell, M.P., P. H. Howard, J. Gray, Sir J. Fife, G. Crawshay, Lockey Harle, J. G. Grant, &c.; the vice chair being occupied by Mr. T. E. Headlam, M.P. A *soirée* followed the dinner. It should be mentioned that previous to the delegate meeting an exhibition of a general character was opened, comprising mechanical models of all kinds, and works of art, including specimens of photography, chromo-lithography, and nature printing, &c., &c.

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* This letter must close the controversy between Mr. Rathbone and Mr. Good.—ED. *Soc. of Arts Journal.*

Miscellanea.

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PROPOSED UNION OF THE LITERARY AND SCIENTIFIC INSTITUTIONS OF CORNWALL.—A meeting has been fixed to take place in Truro, on the 27th inst., with the view of getting these institutions to act unitedly in the engagement of lecturers for the next spring course. The central committee have issued advertisements and letters to lecturers, asking for prospectuses and terms. The information so obtained is proposed to be communicated to each Institution six or seven days prior to the above meeting, and the delegates are expected to attend that meeting with full powers from their committees to decide and arrange for the course.

STORM SAILS.—A correspondent proposes for this purpose the substitution for the usual sail cloth alone intervals of net, the net to be made of the same width as the cloth, and placed alternately with it, and sewn together in the usual manner. He thinks that all the lower sails, with the exception of the jib and foresail, should be made in the above manner. In those he proposes that the width of the net should not exceed one-half that of the cloths, in order that the ship may answer to the helm the more readily. All the sails used above these might be made wholly of net.

MEETINGS FOR THE ENSUING WEEK.

MON. Actuaries, 7.
London Institution, 7, Mr. John Ella, "On Music, Vocal and Instrumental."
Geographical, 8½, 1. Rev. G. L. Porter, "Memoir on the Map of Damascus, Hanran, and the Mountains of Lebanon;" 2. Rev. James Erhardt, "Reports respecting Central Africa, as collected in Mambara and on the East Coast, with a new Map of the Country."
TUES. British Meteorological, 7, Captain Fitzroy, R.N., "On the Wind Charts published by the Board of Trade."
Civil Engineers, 8, Mr. J. Baillie, "On the application of Volute Springs to the Safety Valves of Locomotive Boilers."
Linnæan, 8.
Zooloogical, 9.
WED. London Institution, 3, Mr. Robert Bentley "On the Reproductive Organs and Classification of Plants."
Society of Arts. 8, Mr. P. L. Simmonds "On the Gums and Resins of Commerce."
Royal Soc. Literature, 8½.
Archæological Association, 8½.
THURS. London Institution, 7, Mr. W. Odling "On the First Principles of Mechanical Philosophy."
Antiquaries, 8.
Botanical, 8.
SAT. Asiatic, 2.
London Institution, 3, Mr. Thomas A. Malone, "On the Elementary Principles of Vegetable and Animal Chemistry."
Medical, 8.

PATENT LAW AMENDMENT ACT, 1852.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

It cannot fail to have been observed that the space occupied by the Patent matter has of late gradually increased so as widely to encroach on that required for other subjects. The commencement of a new volume is a convenient season for making a change, and henceforth the List of Patents will be published in the following form, which retains all that is essential for practical use.

[*From Gazette November* 16*th*, 1855.]

Dated September 8*th*, 1855.

2032. Robert Barnard Feather, Liverpool—Improvements in the make and construction of shells and balls to be used with cannon, or other artillery, or fire-arms.

Dated September 18*th*, 1855.

2104. James Dellagana, 61, Red Lion-street, Clerkenwell—Stereotyping type high, that is to say, as high as common printing type, or seven-eighths of an inch high.

Dated October 9*th*, 1855.

2259. Narcisse Leroy, 15, Rue de l'Eglise, Batignolles, Paris—Improvements in the construction of railway carriages.

Dated October 11*th*, 1855.

2273. William Andrew Fairbairn and George Haslam, Manchester—Improvements applicable to locomotive engines and carriages.

2275. Peter Spence, Pendleton—Improvements in the production of sulphate of alumina to be used in the fluid state, or to be rendered into the solid condition, known commercially as cake alum.

2277. John King Westrop, Staining-lane, and Edward Alfred Sharman, 35, Noble-street—Improvements in the manufacture of gloves made of looped fabrics of silk, cotton, and linen.

Dated October 12*th*, 1855.

2281. Robert Henry Kay and Alfred Thomas Richardson and George Mallinson, Manchester—Improvements in the manufacture of plain and ornamental woven fabrics.

2283. William Lyall, Amiens—Improvements in spinning machinery, applicable also to roving machinery.

2285. Henry Gardner, Oldner Farm, Chipping Norton—Improvements in machinery for dressing or cleaning wheat, grain, and seeds.

2287. Adolph Staadt, 3, Grande-place, Brussels—Improvements in obtaining motive power when gravity and steam or expansive fluids are used. (Partly a communication.)

Dated October 13*th*, 1855.

2289. Hugh Greaves, New Palace Yard—Improvements in the construction of steam-boilers.

2293. Louis Ullrich, Prague—Improvements in the means of indicating the number of persons entering an omnibus or other carriage, any theatre, or other building.

2295. Thomas and William Hemsley, Melbourne, near Derby—Improvement in the manufacture of embossed and craped fabrics.

2297. Manuel Perez Lozano, Crutched Friars—Improvements in treating pyrites and ores containing sulphur, in obtaining sulphuretted hydrogen, and in precipitating copper from solutions. (A communication.)

2299. John Stenhouse, 15, Upper Barnsbury-street, Islington—Improvements in the preparation of decolourising materials.

Dated October 15*th*, 1855.

2303. Samuel Kent, Liverpool—Improvements in purifying and measuring water, parts of which are applicable to measuring other fluids.

2305. James Miller Brown and Thomas Brown, 165, Piccadilly—Improvements in the manufacture of folding chairs.

Dated October 16*th*, 1855.

2307. Lewis Normandy, 67, Judd-street, Brunswick-square—Improvements in the mode of writing and printing music, to facilitate the study thereof. (A communication.)

2311. Edwin Wilkinson, Woodhouse, York—Improved mode of extracting grease from woollen, cotton, and worsted waste.

2313. William Edward Newton, 66, Chancery-lane—Improvements in the construction of fire-arms. (A communication.)

2315. James Fraser, Jermyn-street—Improvement in the manufacture of paper or paper pulp. (A communication.)

Dated October 17*th*, 1855.

2317. Henry Bessemer, Queen-street-place, New Cannon-street—Improvements in the manufacture of anchors.

2319. Henry Bessemer, Queen-street-place, New Cannon-street—Improvements in the manufacture of railway bars.

2320. William Thomson, Perth—Improvements in four-wheeled carriages.

2321. Henry Bessemer, Queen-street-place, New Cannon-street—Improvements in the manufacture of cast steel.

2323. Henry Bessemer, Queen-street-place, New Cannon-street—Improvements in metal beams, girders, and tension bars, used in the construction of roofs, floors, and other parts of buildings, and in the construction of viaducts and suspension and other bridges.

2325. Henry Bessemer, Queen-street-place, New Cannon-street—Improvements in the manufacture of ordnance, and in the projectiles to be used therewith.

2327. Henry Bessemer, Queen-street-place, New Cannon-street—Improvements in the manufacture of railway wheels.

2329. John Talbot Pitman, 67, Gracechurch-street—Improvement in fire-arms. (A communication.)

2331. John Adcock, Marlborough-road, Dalston—Improved apparatus for measuring and indicating the distance travelled by ships or other vessels.

Dated October 18*th*, 1855.

2333. Charles Edwin Jones, Huddersfield—Improvements in machinery for raising water and other liquids by means of a combination of the principle of the accumulation of force, by compression of air or other elastic fluids, and that of centrifugal force, the more readily to obtain increased mechanical power thereby.

2335. William Glass, 2, Dahlia-cottages, Millwall, Poplar—Improvements in obtaining a deodorising and disinfecting material.

2337. Doctor Graham, Over Darwen—Improvements in the manufacture of paper hangings and in machinery to be used in such manufacture. (A communication.)

2339. John Cheesman Wagstaff, 20, Grosvenor-street—Improvements in the manufacture of seamless garments and other seamless fabrics. (Partly a communication.)

Dated October 19*th*, 1855.

2341. John Smith, 32, Brydges-street, Covent-garden—Improvements in the construction of bedsteads, such improvements being applicable to carriages, ambulances, and other articles.

2347. Henry Giller, Southampton-street—Improvements in globes and shades for gas and other lights.

2349. William Field and Edward Jeffreys, Shrewsbury—Improved means for securing the rails of railways in their chairs or bearings.

Dated October 20*th*, 1855.

2351. Pierre Arnaud Massip, 39, Rue de l'Echiquier, Paris—A machine for preparing hat linings. (A communication.)

2353. Nathaniel Shattswell Dodge, St. Paul's-churchyard—Improvements in machinery or apparatus for spreading or distributing water-proofing or similar compositions over webs or sheets. (A communication.)

2355. Frederick Whitaker, Murray-street, New North Road—Improvements in the construction of sewing machines.

2357. Henry Woodrow, Wood-street, Cheapside—Improvements in shirts.

Dated October 22*nd*, 1855.

2363. Vincent Scully and Bennett Johns Heywood, Dublin—Improvements in clips or holders for suspending railway tickets, and other small articles.

Dated October 23*rd*, 1855.

2365. William Wilson, Manchester—Improvements in machinery for crushing grain and other substances.

2367. Adolphus Oppenheimer, Manchester—Improvements in machinery or apparatus for stretching or distending velvets and other piled goods or fabrics for the purpose of cutting the pile of such goods.

2371. Thomas Richardson, Portland-place, Newcastle-on-Tyne—Improvements in the manufacture of glass and clay wares.

2373. Henry Weber, Zurich—Improvements in apparatus for motive power.

Dated October 25*th*, 1855.

2377. Jacques Rives, 53, Boulevard St. Martin, Paris—Improvements in looms for weaving.

2379. John Henry Johnson, 47, Lincoln's-inn-fields—Improvements in lamps. (A communication.)

2381. John Edward Mayall, 226, Regent-street—Improvements in photography.

2383. Charles Crickmay, Lambeth, and Frederick Joseph Clowes, Camberwell—Improvements in the manufacture of guns, pistols, and gunstocks, and in cutting and carving wood, metals, and minerals, and other materials by machinery.

2385. Eugène Hippolyte Rascal, Catherine-street, Strand—Improvements in apparatus used in the manufacture of type and other articles for letter-press printing. (A communication.)

Dated October 25*th*, 1855.

2387. Henry Tritton, Great Grimsby—An improved safety apparatus for the protection of persons while painting the exterior of buildings and cleaning windows, which may be used as a balcony for holding flowers.

2389. James Platt and John Whitehead, Oldham—Improvements in machinery or apparatus for preparing clay for the manufacture of bricks.

2391. John Andrew Richards, 10, Tyers-gateway, Bermondsey-street—Improvements in producing the 'hard grain' on leather.

Dated October 26*th*, 1855.

2392. John Pinches, Oxendon-street, Haymarket—Improvements in the construction of dies or stamps for marking papers, linen, or other substances.

2395. Edwin Pugh, Charham, Kent—Safety alarum and signal apparatus.

Dated October 27*th*, 1855.

2399. Simon O'Regan, Liverpool—Improvements in marine engine boilers, and other boilers and their furnaces.

2401. John Ashton, Oldham—Improvements in certain parts of machinery known as 'self-actors' (employed for spinning and doubling cotton and other fibrous materials), for more effectually crossing the yarn during the shaping or building of the 'cops,' than heretofore.

2403. Peter Cranke Wood, Guilford-street-east—Improved machinery for preparing or scutching flax, and other analogous fibrous substances. (A communication.)

2405. Edwin Tomlinson, Barns Cray, Crayford, and Alfred Mortimer Job, Islington—Improvements in waterproofing skins of animals.

2407. Alfred Able, Spring-street, Sussex-gardens, Hyde-park—Improvements in stopping, filling, or plugging teeth, and in instruments to be used therefor.

Dated October 29th, 1855.

2416. Peter Armand le Comte de Fontaine Moreau, 4, South-street, Finsbury—Improvements in breaks for railway carriages. (A communication.)

Dated October 31st, 1855.

2424. Robert Griffiths, Lower Broughton, Manchester—A compound and exact measurement tap, applicable to the measurement of every kind of liquor or liquid.
2426. Thomas Webster Rammell, Trafalgar-square—Improvements in preparing black lead, chalk, and other materials used for drawing, writing, and marking.
2428. George F. Woolston, Washington, U.S.—Improvements in cutting and planing wood.
2430. Thomas Shipp Grimwade, Harrow—Improvements in treating milk in order to preserve it.
2432. Alfred Vincent Newton, 66, Chancery-lane—Improvements in the manufacture of gas. (A communication.)

Dated November 1st, 1855.

2434. Henry Barber Beaumont, 11, Gloucester terrace, Hyde-park—Improvements in portable dwellings or huts, vehicles, and boxes, or packing materials for travellers.
2436. Richard Reeves Cox, Fareham—Improvements in the manufacture of artificial fuel.
2438. David Louis Antoine Nicole, 16A, Chichester-place, King's-cross—Improvements in apparatus for winding up watches.
2440. John Pinches, Oxendon-street, Haymarket—Improved machine or apparatus for embossing paper, metal, and other substances by hand.
2444. Lewis Normandy, 67, Judd-street, Brunswick-square—Improvements in securing the rails in railways. (A communication.)
2446. Edwin Thomas Truman, Old Burlington-street—Improvements in palates or holders for artificial teeth.

Dated November 2nd, 1855.

2448. John Cottrill, Great Lever, near Bolton—Improvements in machinery or apparatus for washing, scouring, dyeing, sizing, and cleaning woven fabrics and yarns.
2450. John Patterson, Beverley—Improvements in mills or machines for grinding, crushing, cutting, and hulling or shelling various kinds of farm produce, and also for crushing and grinding minerals and other substances.
2452. Werner Staufen, 9, Baker-street, Portman square—A substitute for hair and other substances commonly employed for stuffing cushions, furniture, and other articles.

Dated November 3rd, 1855.

2456. James Smith Cottrill, Great Lever, near Bolton—Improvements in machinery or apparatus for washing, scouring, dyeing, sizing, and cleaning woven fabrics and yarns.
2458. James Eastwood, Mill House, Midgley, York—Certain machinery or apparatus for taking out the slubs, noils, and knots from worsted sliver, slubbing, and roving.
2460. George Davis, Southampton—Improvements in apparatus for letting in or shutting off water or other liquids.
2462. William Robertson and James Henry, Edinburgh—Improvements in machinery for reaping and mowing corn or other agricultural produce.
2464. James Greenshields, Glasgow—Improvements in the manufacture or production of drying oleaginous compounds.
2666. William Gardner, Droylesden—Improved method of manufacturing watches or other timekeepers, and also improvements in the machinery, tools, or apparatus for accomplishing the same.
2468. Fennell Allman, Cambridge-terrace—Improvements in apparatus for the production of steam.
2470. George Collier, Halifax—Improvements in weaving carpets and other pile fabrics.
2472. Richard Archibald Brooman, 166, Fleet-street—Improvements in generating motive power. (A communication.)

Dated November 5th, 1855.

2474. John Hicks, Bedford-place, Clapham-rise—Improved gauge valve, applicable to boilers of steam-engines, and to other purposes.
2476. Francis Hawkes, sen., West-street, Reading—Improvements in the construction and arrangement of water-closet apparatus.
2478. Henry Clinton Page, 1, Commercial-road-south, Pimlico—Improved method of indurating marble and stone, and of permanently fixing colours therein, when colouring matters are applied thereto for producing a variegated pattern or device on the surface thereof.
2480. Maurice Gillemot, Paris—Improvements in stopping horses.
2482. Peter McGregor, Dumbarton—Improvements in water-closets.
2484. Thomas Thomas, jun., Bristol—Improvements in the manufacture of soap.
2486. Alexander Charles Louis Devaux, King William-street, City—Improvements in the construction and the fitting up of granaries.

Dated November 6th, 1855.

2488. Joseph Jessop, Lascelles Hall, near Huddersfield—Improvements in the construction of furnaces and boilers.
2490. Richard Goose, Birmingham—Improvements in the manufacture of cut nails.
2492. Richard Threlfall and John Higson, Preston—Improvements in machinery or apparatus used in preparing or sizeing and dressing yarns for weaving.
2494. Anthony Dugdale, Rue Ponthieu, Paris—Improvements in the construction of locomotive engines applicable in part to marine and stationary engines.

Dated November 7th, 1855.

2496. George Cotsell, Brompton—Improved gutter and kerb for roads and streets.
2498. Charles Hart, Wantage—Improvements in threshing and dressing machines.
2500. Frederick Scholefield, Manchester—Improvements in machinery or apparatus for cutting paper, card-board, and similar materials.
2504. Louis Benoit Advielle, Paris—Improved process for silvering metallic articles.
2506. John Wakefield, Inchicore Works, Dublin—Improvements in machinery for working the slides and steam valves of engines driven by steam or other elastic fluid.
2508. Charles Marie Pouillet, Paris—Improvements in railways.
2510. Thomas Godding, Ipswich—Improvements in the fastening for stays, corsets, and bands.
2514. Charles William Siemens, Adelphi—Improvements in evaporating brine and other liquids, and in distillation.

INVENTIONS WITH COMPLETE SPECIFICATIONS FILED.

2519. Cullen Whipple, U.S.—Improvements in machinery for preparing and combing fibrous materials.—8th November, 1855.
2533. Ephraim Green and Jacob Green, West Bromwich—Improvements in malt crushers.—10th November, 1855.

WEEKLY LIST OF PATENTS SEALED.

Sealed November 16th, 1855.

1108. Robert Vezey and Edmund Vezey.
1118. James Rae.
1125. William Henry Dearing Granville.
1126. Robert John Stainton and Edmund Charles Davey.
1134. Thomas Piggott.
1139. Ignace Joseph Silbermann, jun.
1145. William Mac Naught.
1147. James Shanks.
1149. John Henry Johnson.
1151. Henry Emanuel Scott.
1180. George Horrocks.
1199. Charles Weightman Harrison.
1230. George Rogers.
1264. François Celestin Armelin, jun.
1298. Pierre Antoine Favre.
1306. Charles Constant Joseph Guffroy.
1308. Richard Peters.
1344. John Charles Brant.
1361. Felix Leloup.
1402. John Henry Johnson.
1433. John Gay Newton Alleyne and Henry Strafford.
1440. Stanislas Tranquille Modest Sorel.
1490. William Woodcock.
1588. Edwin Senior Atkinson.
1608. Walter Christopher Thurgar.
2098. James Tennant Caird.

Sealed November 20th, 1855.

1127. Walter Henry Tucker.
1137. Harry Whittaker.
1164. William Smith.
1172. Charles Rawlings.
1210. Samuel Rowlands.
1226. Edward John Payne.
1228. William Langshaw and George and William Jelley.
1292. George Hopper.
1320. Masta Joscelin Cooke.
1460. François Vennin Deregniaux.
1640. Henry Duncan Preston Cunningham.

WEEKLY LIST OF PATENTS ON WHICH THE THIRD YEAR'S STAMP DUTY HAS BEEN PAID.

November 12th, 1855.

738. Richard Coad and John Peers Coad.
787. Moses Poole.
795. Henry Bessemer.
797. Henry Bessemer.
799. Henry Bessemer.
820. Samuel Hunter.
900. Samuel Cunliffe Lister and James Warburton.

November 13th.

754. William Fraser Rae.
755. James Robertson.
876. Jean Hippolyte Salvan.

November 14th.

748. Constant Jouffroy Dumery.
762. Joseph Burley.
767. John Rambsbottom.

November 16th.

803. James Nasmyth.
871. James Taylor.
1094. Alfred Krupp.

November 17th.

790. Benjamin Nickells.